



May 17, 2013

VIA EMAIL AND U.S. MAIL

Richard Sachs
Wastewater Specialist
Wisconsin Department of Natural Resources
2984 Shawano Avenue
Green Bay WI 54313-6727

RE: Draft WPDES Permit WI-0025038-08-0

Dear Mr. Sachs:

Please accept these comments from the City of Oshkosh (the "City") regarding the draft WPDES permit ("Permit") for the City's Wastewater Treatment Facility ("WWTF"). These comments focus on (1) the Permit's water-quality based effluent limit ("WQBEL") for phosphorus, and (2) land application reporting procedures. As to phosphorus, the Permit sets the WQBEL at 0.04 mg/L, based on the water quality criterion for Lake Winnebago, which is more than a mile and a half from the WWTF's discharge point and is impacted by numerous other point and non-point sources. The City believes that the proposed limit is inconsistent with the Department's regulations and guidance. As to land application reporting procedures, the City believes that its current method of recording and reporting land application activities is appropriate and effective, and the Permit should allow the City flexibility to continue its current practice.

Phosphorus Comment 1: In setting the WQBEL equal to the Lake Winnebago water quality criterion of 0.04 mg/L, the Department failed to make a proper determination that the phosphorus discharge from the Oshkosh WWTF to the Upper Fox River causes or contributes to an exceedance in Lake Winnebago.

As a threshold matter, the Department failed to make a proper determination that the Oshkosh WWTF phosphorus discharge causes or contributes to an exceedance in Lake Winnebago. This determination is a prerequisite to imposing a WQBEL based on a downstream water body's water quality criterion. Wis. Admin. Code § NR 217.12 provides that:

Water-quality based effluent limitations for phosphorus shall be included in a permit *whenever the department determines* [that] [t]he discharge from a point source contains phosphorus at concentrations or loadings which will cause, has the reasonable potential to cause or contribute to an exceedance of the criteria in s. NR 102.06 in either receiving water *or downstream waters*; and .



. . [t]he technology based effluent limitation . . . is less stringent than necessary to achieve the applicable water quality standard for phosphorus[.] (emphasis added.)

In order to make a proper determination of downstream impacts under section NR 217.12, the Department must consider a number of relevant factors. According to the Department's *Implementation Guidance for Wisconsin's Phosphorus Water Quality Standards* ("Phosphorus Guidance"), Section 2.05, these factors include (1) the distance of the outfall to the downstream water, (2) the amount of phosphorus discharged compared to the flow of the receiving water, and (3) the relative contribution of phosphorus from the discharger to the downstream water, among others. These factors are designed to ensure an accurate analysis and description of the impact of a discharge on a downstream water body.

However, the Permit and its supporting documents fail to address these relevant factors. Rather, the Permit documents simply point out that Lake Winnebago is a phosphorus-impaired water body and is downstream from the WWTF. There is no analysis of (1) the relatively large distance between the WWTF and the downstream water (1.5 miles); (2) the high rate of flow at the point of discharge (the Department previously calculated the design flow at 1,350 cfs, pursuant to NR 271.13(2)(b)); or (3) the WWTF's very small relative contribution to phosphorus levels in Lake Winnebago – all of which are considered relevant by the Department's own guidance, and all of which weigh against finding an impact on Lake Winnebago's phosphorus levels. Indeed, a substantial majority of the phosphorus loadings in Lake Winnebago and the greater Fox/Wolf watershed comes from nonpoint sources, and there are also numerous other point sources that contribute phosphorus. Thus, it is unlikely that the WWTF's phosphorus discharge has any meaningful impact on phosphorus levels in Lake Winnebago. In sum, because the Department failed to make a proper determination that the WWTF causes or contributes to an exceedance, the Department was not justified in establishing a WQBEL based on that downstream water.

Phosphorus Comment 2: The Department's method of calculating the phosphorus WQBEL – simply setting the WQBEL equal to the criterion for Lake Winnebago – is inconsistent with the Department's regulations and guidance. The Department must use a method to calculate the WQBEL that considers relevant factors, including distance to the downstream water, flow rate, and relative contributions of other sources.

Even if the Department had made the required threshold determination for imposing a WQBEL based on a downstream water, the limit that the Department imposed is contrary to NR Chapter 217 and to the Department's own Phosphorus Guidance. As an initial matter, the City notes that, pursuant to NR 217.13(1)(a), phosphorus WQBELs must be calculated based on one of the approved procedures described in Section 217.13. Various subsections of Section 217.13 prescribe different procedures depending on the circumstances of the discharge. Here, the Department attempted to rely on Subsection 217.13(3) as the purported basis for setting the WQBEL equal to the criterion for Lake Winnebago. However, by its own terms, Subsection 217.13(3) applies only to "discharges of phosphorus *directly to* inland lakes, reservoirs, and other receiving waters which do not exhibit a unidirectional flow *at the point of discharge.*" (emphasis

added.) The WWTF does not discharge directly into Lake Winnebago or any other lake or reservoir; it discharges into the Upper Fox River a mile and a half upstream from Lake Winnebago. Thus, Subsection 217.13(3) does not provide a basis for calculating a WQBEL based on the criterion for Lake Winnebago.

Therefore, the Department must look elsewhere in Section 217.13 for a basis for the WQBEL. Subsection 217.13(2), which deals with discharges to streams and rivers, would seem to be the most natural fit, given that the WWTF in fact discharges into a river (and indeed the original draft of the Permit used this method). But, in arriving at the WQBEL of 0.04mg/L, the Department clearly did not use the calculations prescribed by 217.13(2).

Subsection 217.13(4) is also inapplicable, as it relates to discharges to the Great Lakes.

Thus, because the WQBEL calculated by the Department is not supported by Subsections (2), (3), or (4), that leaves only the catch-all provision, Subsection 217.13(5), as a potential basis for the Department's determination. Subsection 217.13(5) provides that "the department may use other models and equations for calculating a water quality based effluent limitation if, in the best professional judgment of the department, the model provides a more accurate representation of the conditions." The question, then, is how to calculate a WQBEL that reflects an "accurate representation of the conditions."

The best method would be a lake modeling mass balance analysis. As the Section 2.05 of the Department's Phosphorus Guidance states, for discharges to rivers or streams that flow into a lake, "it is highly recommended that a lake modeling mass balance analysis be conducted prior to developing a WQBEL for phosphorus." Clearly, the Department did not perform such an analysis here. Indeed, the Department must consider the basic factors that its own guidance identifies as relevant to determining downstream impacts, including distance to the downstream water, flow rate at the point of discharge, and relative contributions of other sources.

The need for a careful analysis of downstream impacts is particularly acute here, where the economic implications of a restrictive WQBEL are enormous. The City is Wisconsin's eighth-largest municipality, and the phosphorus limits could result in tens of millions of dollars in required improvements. For example, the proposed limit of 0.04 mg/L would likely require the City to install a tertiary filtration system at an estimated cost of \$39 million dollars. Given these economic stakes, it is essential that the WQBEL accurately reflect the downstream impact of the WWTF, and it is unreasonable for the Department to impose a phosphorus WQBEL that bears little if any relation to the WWTF's actual impact on phosphorus levels in Lake Winnebago.

Finally, please note that even as the Department works to determine the terms of the Permit and to develop TMDL programs for the Upper Fox and Lake Winnebago basins, the City has taken and continues to take concrete steps to reduce its phosphorus discharge. Many of these steps anticipate the phosphorus optimization requirements set forth in the Permit. These steps include:

- Improvements to the chemical addition process (ferrous chloride) to enhance operational flexibility for the removal of phosphorous:
 - Rehabilitation of chemical feed lines to provide multiple points for the chemical application of ferrous chloride. Application to different points allows for the evaluation of phosphorus reductions at various points to maximize removal and chemical efficiency. Application points include:
 - Ferrous application to the headworks for better phosphorus removal in the primary clarifiers.
 - Ferrous application to the influent of the aeration basin which is the normal design location for this application.
 - Ferrous application to the effluent troughs of the aeration tanks. This allows Ferrous application just before the final clarifiers to enhance clarifier effluent for additional phosphorus removal in the effluent.
 - The solids processing side streams were identified as returning high amounts of phosphorus back into the system. A ferric feed line was installed into the centrifuge feed lines to chemically tie up the phosphorus and allow it to settle out in primary clarifiers, improving phosphorus removal from this source.
 - A liquid polymer injection system has been installed in both primary and secondary clarifiers to enhance the solids removal which reduces the phosphorus related to Total Suspended Solids in the effluent.
- Trials are planned to evaluate the use of ferric chloride for phosphorus removal in place of the currently used ferrous chloride.
- A phosphorus source identification program has been implemented through the City of Oshkosh Pretreatment Program to identify sources of phosphorus that may be coming from industrial or commercial sources. Once identified, significant sources will be contacted to see if an alternative non-phosphorus product or process can be used.

Land Application Reporting Comment: The Department should modify Section 4.2.1.5. ("Daily Land Application Log") to allow the City to continue to use its current land application recordkeeping and reporting protocol, which effectively monitors and reports land application activities.

The WWTF currently has a contracted land application program and has been successfully monitoring land application on approved fields to ensure regulatory compliance. Almost all of the WWTF's biosolids are stored and are then land applied at one time. To assist our contractor with proper application rates, the WWTF calculates the nitrogen requirements based on the six tests from the previous year and develops a schedule of tons and truckloads per acre per field for application. The contractor then uses this information to apply at the prescribed rate and reports to the WWTF the timing and amount of application. The WWTF uses this information to complete the biosolids management information in its annual report to DNR. This method of recordkeeping and monitoring has successfully tracked amount and rates of application on the approved fields. The WWTF's DNR area engineer has confirmed that the WWTF is monitoring and reporting the appropriate land application information. Accordingly, the City believes that the proposed land application log requirements in the draft Permit are unnecessary and would be a poor fit for the WWTF's contracted land application program. The City requests that the land application requirements in the permit allow it to continue to use its current procedure for monitoring and reporting land application activities.

Thank you for your consideration of these comments. The City of Oshkosh looks forward to working with the Department and other stakeholders to further improve water quality in the Upper Fox and Lake Winnebago.

Very truly yours,



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